

## **OFFICE OF POLLUTION PREVENTION AND TOXICS**

### **FACT SHEET / Q&A: ASBESTOS-CONTAINING VERMICULITE**

The mining of vermiculite in Libby, Montana began in 1919. Even before 1963, when W.R. Grace & Company acquired the mine, there were concerns about asbestos exposure from the mine. Since then, other federal and state agencies including OSHA and NIOSH have studied asbestos exposure at the mine. Since the 1970s, EPA has been involved in the issue of asbestos contamination in vermiculite, including the material mined in Libby by W.R. Grace. In the early 1980s, the Office of Toxic Substances (OTS) conducted reviews of vermiculite to determine if it should be included in the then upcoming Asbestos Ban and Phase-out Rule (ABPO). Today, Superfund is involved at Libby due to concerns over asbestos contamination in the local communities from the mining, milling, and transport operations. The Office of Pollution Prevention and Toxics (OPPT) (formerly OTS) has been asked about the history of our decisions concerning vermiculite, the outcome of the ABPO Rule, and whether there is a concern over vermiculite today.

In 1978, EPA received from O. H. Scott, Inc. a TSCA section 8(e) notice of substantial risk on the health effects of vermiculite on its workers. This notice initiated OTS's (now OPPT) review of vermiculite exposure. In 1982, the Midwest Research Institute (MRI) produced a report for OTS titled: "Collection, Analysis and Characterization of Vermiculite Samples for Fiber Content and Asbestos Contamination", which showed that milled and screened vermiculite from W.R. Grace's Libby mine contained between 4-7% asbestos by weight. The report also concluded, using methodologies and assumptions available at the time, that this material contained less than 1% respirable asbestos fibers. At the time, 1% total asbestos by weight was the level of quantification and was used as the level of concern for asbestos containing materials. Due to the fact that there were products on the market with 80-90% asbestos, OTS decided not to pursue vermiculite as a priority. In 1985, Versar, Inc. conducted an exposure assessment for OTS of asbestos contaminated vermiculite using the data from the 1982 MRI report. The assessment included occupational, consumer and general population estimates which have raised concerns about risk levels. No risk calculations were included in the report.

Currently OPPT and EPA regional offices are updating lists of producers, processors and exfoliators of vermiculite; updating the history of the Libby mine and various government agencies involvements; conducting a literature search on vermiculite and other ores containing asbestos; and determining current asbestos levels of asbestos containing materials in the environment through additional sampling and analysis. This effort includes vermiculite products and construction materials. These efforts will allow us to test the assumptions made in the 1980's using today's scientific methodologies. In addition, EPA's regional office in Denver is sampling homes, schools, and ambient air in Libby as well as offering health/exposure screening for the residents to assess current conditions.

## Conclusions

1) Following an additional review of the information concerning vermiculite, OPPT believes that its 1979-1986 review process was logical and complete and consistent with the methodologies available at the time. The 1983 decision not to pursue asbestos-contaminated vermiculite product was based on a finding of 4-7% asbestos content in beneficiated ore and calculation of <1% respirable fiber content in products. Priority was given to commercial and industrial asbestos products which had fiber content as high as 80-90%.

2) The 1986 proposed Asbestos Ban and Phase-out (ABPO) rule did not include products where asbestos in products was <1% or mining operations where asbestos was a contaminant. Many commenters wrote comments supporting the proposal because processed ores contained respirable fibers at no greater than low parts per million (ppm) levels. Based on the 1982 MRI report and methods available at the time, EPA estimated that products produced from Libby vermiculite contained less than 1% respirable asbestos fibers.

3) In 1991, the U.S. Court of Appeals in New Orleans remanded the ABPO rule and as a result, it did not go into effect. However, this remand would not have affected the Libby situation, or U.S. vermiculite production. Even without the remand, there would have been no impact.

4) The 1982 and 1985 reports document the releases of asbestos from Libby mining, milling and transportation. Since vermiculite has been mined in Libby since the 1920s, it is likely there has been significant environmental build-up of asbestos in the area, especially the mining and milling areas.

5) Current risk assessments for consumer use of vermiculite products show reasonably low risk for products with <1% asbestos. Data shows that asbestos content in vermiculite products from other mines is lower than that of the Libby mine which closed in 1990. Therefore, it is unlikely that today's vermiculite products pose a consumer risk. Future and ongoing sample analysis will confirm or deny this assumption.

6) Risks to the general public, and Libby residents appear to be due to past environmental releases from mining, milling and transport of vermiculite ore. More definitive ambient data are needed and collection is underway. It is known that asbestos fibers accumulate in indoor environments, and re-entrainment of indoor fibers can multiply indoor ambient levels 50-fold (Sebastien, 1979).

